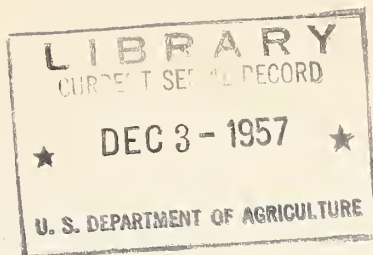


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Italy's Olive Production

AND THE TABLE OLIVE INDUSTRY

By Karl W. Opitz

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ITALY'S OLIVE PRODUCTION AND THE TABLE OLIVE INDUSTRY

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Summary

Italy ranks next to Spain in world olive production. In pursuing its policy of encouraging development of the olive industry, the Italian Government has earmarked sizable sums of money for expanding production of olives for oil. These plans, however, envisage no increase in the production of table olives.

Over 97 percent of Italy's olive production is crushed for oil, leaving less than 3 percent for marketing as table olives. Even under favorable conditions, the annual table olive output rarely exceeds 30,000 short tons. The volume is also characterized by wide fluctuations from year to year. Unknown but appreciable quantities of oil olives are annually picked and eaten by farm families and laborers. There is no evidence of change in the existing use pattern.

Less than 5 percent of the Italian processed olive volume is exported annually. Though many table olives are of good quality, they usually lack uniformity with the result that there are many different types, shapes, and sizes in Italian markets.

Italy's olive production is handicapped by the Dacus, or olive fly, climate, the inroads of other plant pests, and diseases. According to some estimates, avoidable losses from the Dacus fly alone amounted to 50 billion lira (\$80 million U.S.) in 1955. Expansion of the industry seems unlikely unless plant pests and diseases are controlled. The practice of interplanting vegetables and other crops in olive groves adds to the difficulties in instituting suitable control measures.

Total Production

Italy leads the world in number of olive trees and is second only to Spain in the number of acres devoted to olive production, tonnage of olives harvested, and gallons of olive oil produced. Olive products, chiefly oil, annually account for between 3.5 and 5 percent of the national income from agriculture. "Specialized" olive groves (farmland devoted solely to the production of olives) cover 2.6 percent of Italy's total land area, while interplanted olive trees account for another 4 percent. The average annual production of olives of all types in Italy for the 9-year period 1948-56 amounted to about 1.4 million tons. The volume of olives produced in Italy has changed remarkably little as shown by a comparison of the prewar and postwar averages. Wide variations in harvest, however, have occurred during successive seasons due to varying weather conditions.

Areas of production.—Puglia exceeds all other Italian regions in olive production. Orchards of the Bari area, one of the world's greatest olive plantings, rival the Jaen, Cordoba, and Seville regions of Spain. Together, the Puglia, Calabria, and Sicily regions produce 65 percent of all olives grown in Italy. Southern Italy, excluding the island of Sicily, accounts for more than half of all Italian olive production. Only the Po River Valley and the Alpine regions lack olive trees.

Table Olive Production

Italian table olive production averages approximately 30,000 short tons annually and is exceeded only by that of Spain. Official statistics, however, place Italian table olive per capita consumption at one and one third pounds.

Table olive production reached peak levels in the twenties, declined sharply in the thirties, and largely recovered during the postwar period. In most recent years, however, some decline in volume has taken place. During the 5-year period, 1950-54, production averaged approximately 31,900 tons per year. Actual production is believed to have exceeded official figures since the latter fail to include appreciable quantities of olives withheld for home consumption. In years of large olive crops, more olives are withheld from the market for home curing than when light harvests have been general.

Areas of production.—The island of Sicily has been the main source of Italian table olives. In 1950-54, Sicily produced about 39 percent of the Italian output. Agrigento, Catania, and Messina on the island of Sicily are production areas that aggregate nearly 10,000 tons of table olives annually. Puglia constitutes the next most important area of production, averaging 30 percent of the total. Bari, Foggia, and Taranto are the table olive centers of Puglia. Calabria ranks third in importance, accounting for an average of 12 percent of the total. The Calabrian olive centers are found in Cosenza and Reggio provinces. Sicily, Puglia, and Calabria together represent over 80 percent of the entire output of Italian table olives. Campania follows Calabria in table olive importance with production centered about Benevento and Naples provinces.

Recently table olive production in Sicily has trended downward. In Puglia, Lazio, and Abruzzi e Molise, production has been rising. The world famous variety Ascolana is grown in the province of Ascoli in the Marche region. It is prepared as a green-fermented olive in either dried, baked, or Greek style. Production of this delicacy amounts to 200 tons annually. Most of the remaining table olive areas are scattered throughout the regions of Basilicata, Campania, Sardinia, and Tuscany.

Unmixed and Intercropped Olive Groves

Though Spain possesses a greater acreage of olives, more trees are grown in Italy. Italian unmixed or specialized olive plantings have an average tree density of 55 per acre compared to the Spanish average of 30. There were nearly 2.2 million acres of unmixed olive plantings in Italy in 1955 comprising an estimated 120 million olive trees. In Italy's tremendous intercropped or interplanted groves, amounting to about 3.4 million acres in 1955—on which the average number of trees per acre is about 16—there were an estimated 54 million additional olive trees. This is equivalent to 977,000 acres on a solid-planted basis. Of this total of about 174 million olive trees on 3.2 million acres, solid-planted basis, about 6 million trees or more than 100,000 acres, were classified as non-bearing, while 3.1 million acres were in production. Italian statistics show little change in acreage over the past two decades. California has a relatively small but highly productive industry consisting of an estimated 31,000 acres planted to olives.

TABLE 1.—Olives, Italy: Area, production, and yield per acre, averages 1936-38 and 1948-51, annual 1952-56

Item	: Average	: 1952	: 1953	: 1954	: 1955	: 1956	1/
	: 1936-38:1948-51:	:	:	:	:	:	
	: 1,000 : 1,000	: 1,000:	: 1,000:	: 1,000:	: 1,000:	: 1,000:	
	: acres : acres	: acres:	: acres:	: acres:	: acres:	: acres:	
Area:	:	:	:	:	:	:	
Specialized (unmixed). . . .	: 2,031 : 2,088	: 2,152:	: 2,155:	: 2,177:	: 2,179:	: —	
Unspecialized (mixed). . . .	: 3,339 : 3,548	: 3,319:	: 3,272:	: 3,319:	: 3,358:	: —	
	: 1,000 : 1,000	: 1,000:	: 1,000:	: 1,000:	: 1,000:	: 1,000:	
	: short : short	: short:	: short:	: short:	: short:	: short:	
Production:	: tons : tons	: tons:	: tons:	: tons:	: tons:	: tons:	
From specialized plantings .	: 927 : 921	: 792:	: 1,590:	: 1,268:	: 858:	: —	
From unspecialized plantings	: 436 : 428	: 420:	: 627:	: 639:	: 365:	: —	
Total olive production . .	: 1,363 : 1,349	: 1,212:	: 2,217:	: 1,907:	: 1,223:	: 1,069	
Table olives	: 11 : 26	: 24:	: 39:	: 28:	: 28:	: 33	
Olives for oil	: 1,352 : 1,307	: 1,188:	: 2,178:	: 1,868:	: 1,196:	: 1,036	
Olive oil.	: 221 : 226	: 219:	: 381:	: 313:	: 199:	: 165	
	: Short : Short	: Short:	: Short:	: Short:	: Short:	: Short:	
	: tons : tons	: tons:	: tons:	: tons:	: tons:	: tons:	
Yield per acre:							
Specialized (unmixed). . . .	: .45 : .44	: .37 :	: .74 :	: .58 :	: .39 :	: —	
Unspecialized (mixed). . . .	: .13 : .12	: .13 :	: .19 :	: .19 :	: .11 :	: —	
	: :	: :	: :	: :	: :	: :	

1/ Breakdown not available for 1956.

TABLE 2.—Olives, Italy: Regional distribution of olive plantings, 1954 1/

Region	: Specialized	: Unspecialized
	: Acres : Percent	: Acres : Percent
Puglia.	: 785,284 : 36.4	: 489,505 : 14.7
Calabria.	: 366,943 : 17.0	: 229,803 : 6.9
Sicily.	: 252,536 : 11.7	: 641,472 : 19.3
Lazio	: 207,564 : 9.6	: 191,502 : 5.8
Tuscany	: 125,033 : 5.8	: 520,145 : 15.7
Campania.	: 147,519 : 6.8	: 274,281 : 8.3
Abruzzi e Molise.	: 29,652 : 1.4	: 467,266 : 14.1
Liguria	: 98,840 : 4.6	: 21,498 : .6
Sardinia.	: 56,339 : 2.6	: 77,342 : 2.3
Basilicata.	: 46,949 : 2.2	: 49,914 : 1.5
Umbria.	: 24,957 : 1.2	: 141,094 : 4.2
Marche.	: 2,827 : .1	: 136,646 : 4.1
Emilia-Romagna.	: 1,235 : .0	: 55,103 : 1.7
Veneto.	: 6,425 : .3	: 16,803 : .5
Lombardy.	: 6,919 : .3	: 9,390 : .3
Total	: 2,159,022 : 100.0	: 3,321,764 : 100.0
	: :	: :

1/ Sum of regional figures does not fully coincide with national totals.

Using the tree densities per acre assumed above, prewar olive tree numbers (1936-38) averaged about 164 million, compared with an average of 172 million in the 1948-51 period, and 174 million in 1955, an increase of 10 million trees, or 6 percent over the prewar number.

Size of Farm Units

Most of Italy's farm units are characterized by their small size; olive growing is no exception. Among the 9.5 million farm families in Italy, more than 5 million operate farms of less than one acre in size. About 3.5 million families have farms ranging from 1 to 12 acres. Only 500 farms exceed 2,500 acres. The larger farm units, especially those located in Puglia, tend to have "specialized" or unmixed groves, while the smaller units usually have interplanted crops in the same areas.

Within the past 7 years, more than 100,000 families have settled on land reform farms encompassing about 1.8 million acres. Olives constitute a secondary crop on many of these 5-to 20-acre farm units. The establishment of arboreal and intertilled crops has long been one of the goals of Italian reclamation and resettlement projects. Olives have been found to yield the greatest return per unit of land in some areas when given a heavy application of labor. Olives, accordingly, are characteristic of the small subsistence farms which comprise much of Italian agriculture. Italy suffers from excess farm labor and chronic unemployment, and there is little difficulty in obtaining adequate labor for olive production. Customary wages for agricultural labor in the South of Italy are the equivalent of \$1.50 (U.S.) per day.

Climate and Soil

The narrow Italian peninsula is broken by the Apennine Chain. Sicily and Sardinia, nearby islands, are similarly mountainous. The irregular configuration of the land produces a wide variety of climates. Mild winters and dry summers contrast with cold winters and hot, frequently humid summers. These conditions are often accompanied by unpredictable rainfall and changing winds, at times inflicting heavy damage upon the olive crop.

Except for plantings around the sub-Alpine lakes, the northernmost limits for commercial olive growing lie along the northern slopes of the Ligurian Apennines in the vicinity of Genoa. Olive trees grow on terraced or partly terraced mountain slopes in forest-like groves along the Ligurian coast near the southeast border of France and for a few miles inland. Annual rainfall commonly reaches 60 inches in some of these areas. On the other hand, olive areas of the Puglia region and on the Island of Sicily average less than 20 inches of rainfall annually.

A thin layer of good friable soil (from 1 to 2 feet deep) overlies thick limestone deposits in the province of Bari. Growers build deep levees around their trees to catch and hold the rainfall in this relatively arid climate. Italian hill soils tend to be shallow and often contain clay deposits making them difficult to cultivate. The steady demand for olive oil, both domestic and foreign, coupled to the frequent lack of alternative land



Ancient olive trees of the Puglia region. This area contains over 36 percent of the specialized plantings and nearly 15 percent, unspecialized.



Old olive tree south of Pari--one of the table olive centers of Puglia.

uses, causes olives to be produced under less than ideal conditions.

Some coastal sections of the Italian peninsula—particularly along the Tyrrhenian and Ionian seas—and much of the coast of Sicily have such mild winters that olive trees frequently fail to develop a satisfactory set of fruit. Even when conditions favor a heavy set, warm weather promotes *Dacus* fly development. The increased numbers of this pest reduce the volume and quality of fruit produced.

Nearly every soil type found in Italy supports some olive trees. Olives grow at the extreme limits of cultivation in the Apennine areas. Normally, crops other than olives are planted on the better soils, particularly those of volcanic origin. Most of the olives are grown on land which is less fertile and more difficult to manage.

Freeze damage of early 1956.—Prior to the freezes in the spring of 1956, prospects were good for the expansion of olive and olive oil production in Italy. During the preceding 5-year period, approximately 500,000 olive trees had been planted yearly. These trees would normally have been producing within 7 years of their planting date. The freezes, however, have seriously delayed prospects of additional tonnage for the next few seasons in central Italy, particularly in the Umbria region and the neighboring Tuscany, Marche, and Abruzzi e Molise areas. Local damage has also been noted in Puglia.

Olive Culture

Cultural practices used in the production of Italian olives differ little from the methods developed centuries ago. Growers maintain soil fertility principally by applying manures and composts. The more progressive farmers add nitrogen, phosphorus, and potash in the form of commercial fertilizers. Many growers prefer calcium cyanamid as a source of nitrogen as well as for its neutralizing qualities. Unfortunately, the areas most needing fertilizers are the ones least likely to receive them. Many of Italy's olive groves exhibit nitrogen deficiency. On the other hand, some of the best Italian olive groves are unsurpassed in health, vigor, and productivity.

There are over 150 varieties of olive trees grown in Italy. Olive experts feel that the least desirable varieties should be eliminated and have projected studies to determine the best combinations of scions and rootstock.

In specialized plantings (unmixed), weeds and occasional cover crops are plowed under in early spring or between rains during the winter. Where olives are interplanted with other crops, farmers do very little or no cultivating or fertilizing. Most of the plowing is done with cattle while other forms of tillage and heavy work are carried out with horses, mules, donkeys, and humans. Tractors are rarely used in olive groves.

Pest and disease control.—Olive pests and diseases are among the most serious problems encountered in Italian olive culture. Several factors appear responsible for Italy's failure to cope with serious insects and diseases. The more important include:

- (1) The irregular and steep terrain which makes the use of power equipment other than aircraft almost impossible.
- (2) Heavy plantings in populous areas which preclude the use of poisonous sprays by aircraft.
- (3) A general shortage of suitable power spray equipment.
- (4) Excessive height of many olive trees and the high per acre density of many olive groves which make control measures difficult.
- (5) Failure to develop satisfactory control measures for the major olive insect pests and failure to disseminate information on control methods already developed.
- (6) Lack of effective area-wide coordination of pest control methods.
- (7) Deficient fruit sanitation in years when olive fly infestation is high, such as permitting infested olives to fall and remain on the ground prior to harvest.
- (8) Power spraying difficulties caused by the many small groves and interplanted acreages.

In most of Italy's olive-producing areas, control of the olive fly, *Dacus oleae*, is of paramount importance. This pest alone caused a reduction in the 1955 crop of at least 60 percent. Agricultural scientists have thus far failed to agree upon an effective spray. Most Italian entomologists working on the problem feel that the use of parathion is essential to control but have hesitated to recommend it because of its toxic residue. The use of parathion and other organic phosphates calls for as many as three applications after oil has formed in the olive. This results in absorption by the fruit and contamination of processed olives and olive oil. The great need for olive fly control increases the possibility for continued use of organic phosphates in the commercial production of olives in Italy. Blending and refining are looked upon as measures helpful in holding toxic residues to low concentrations.

In the fight to control the *Dacus* fly, a new phosphoric ester, marketed by an Italian firm, has shown considerable promise in limited, preliminary experiments. Its high water solubility minimizes the problem of toxic residues which has prevented the widespread use of similar products in the past. If this compound proves to be effective in field use, Italian olive growers will have made an important forward step in their cultural practices.

Climate and soil adversities add to the problems of olive disease and pest control. Excessive heat, cold, wind, and irregular rainfall directly affect the setting of the fruit, its maturing, and even its harvesting. These factors provide favorable conditions for a great number of diseases and pests. Professor A. Morettini, eminent Italian horticulturist, lists 4 major and 3 minor parasitic foliage diseases, 3 fungi that attack the

TABLE 3.—Olives, Italy: Distribution of groves according to topography

Character of site	Specialized planting	Interplanted
	Percent	Percent
Mountainous	20.9	18.1
Hilly	59.9	73.6
Plains	19.2	8.3

TABLE 4.—Olives, table, Italy: Production by regions, averages 1935-39 and 1950-54, annual 1952-55, national total 1956, and percentage distribution of 1955 total

Region	Average 1935-39	Average 1950-54	1952	1953	1954	1955	1956	1/Percent of total (1955)
	Short tons	Short tons	Short tons	Short tons	Short tons	Short tons	Short tons	Percent
Sicily	5,447	12,588	6,173	17,857	9,370	14,330	—	58.0
Puglia	2,350	9,590	10,472	8,267	10,803	4,409	—	17.9
Calabria	1,231	3,880	220	7,275	2,094	3,638	—	14.7
Lazio	1,262	1,786	2,976	1,543	2,425	110	—	.5
Campania	729	860	992	882	882	441	—	1.8
Basilicata	321	1,036	992	1,102	992	792	—	3.2
Tuscany	281	264	221	220	220	110	—	.5
Sardinia	352	441	441	441	331	221	—	.9
Abruzzi e Molise	609	1,125	992	1,213	1,102	441	—	1.8
Marche	153	265	331	331	220	220	—	.9
Others	26	154	0	220	0	0	—	0
Total	12,761	31,989	23,810	39,352	28,439	24,692	33,100	100.0

1/ Regional breakdown not available for 1956.

TABLE 5.—Olives, Italy: Acres of unmixed and mixed plantings with comparisons, averages 1936-38 and 1948-51, and annual 1955 and 1956

Year	Acres	Percent change from 1936-38 level
	Thousands	Percent
Unmixed plantings:		
Average:		
1936-38	2,031	—
1948-51	2,088	+3
Annual:		
1955	2,175	+7
1956	2,171	+7
Interplanted:		
Average:		
1936-38	3,339	—
1948-51	3,548	+6
Annual:		
1955	3,374	+1
1956	3,366	+1

fruit, 6 types of heartrot, 4 disorders of the conductive system, and 2 root diseases. Many insects attack olive trees and/or fruit. These include 8 species of fly, 19 kinds of butterflies and moths, 2 breeds of wasps, 18 types of beetles, 26 scale species, 1 kind of thrips and 2 species of termites. Major plant pests are the olive or Dacus fly, olive tineas, olive weevil, olive thrips, psilla, olive beetles, black scale, oleander scale, and leopard moth.

Pruning methods.—Though olive trees are pruned annually or biennially over much of the larger sections of production, many trees receive little or no pruning. Some trees are permitted to become so large that harvesting of ripe fruit is very difficult. The dropped olives are gathered from time to time from the ground.

Pruning methods tend to be regional and to vary considerably between areas. Near Monopoli and other areas in the province of Bari, pruning and shaping of very old olive trees has become a remarkable operation. Some of the most drastic pruning methods used anywhere in the world are practiced in Italy, particularly in Puglia and parts of Tuscany. Various systems have been developed to limit tree sizes and regulate bearing and to compensate for local rainfall conditions. Pruning is also done to control olive pests and diseases.

In essence, olive trees are pruned to utilize the natural pairing of shoots and branches, thereby enhancing natural growth tendencies. Two main leaders are formed 3 or 4 feet above ground from a single main trunk. Each of these is divided into paired main laterals. Laterals and sublaterals, in turn, are further paired at regularly spaced intervals until only single vigorous upright shoots remain, resulting in a tree that is thin according to American standards. The two forms most frequently developed are those resembling an open vase and the multiple pyramid.

Harvesting

The harvesting of table olives differs little from the simple methods used elsewhere throughout the world. While oil olives are picked from straight ladders, beaten off, or allowed to drop, table olives are usually picked from ladders directly into baskets slung from the necks and shoulders of pickers. Both modern—motorized—and ancient transportation methods—including baskets astride the backs of horses and donkeys—are used to haul olives to the principal marketing centers.

Table olive yields.—Current per acre yields of olives in Italy are approximately the same as before World War II. Specialized or unmixed plantings averaged .45 tons of olives per acre during the 1936-38 seasons; for 1948-51, the average yield was .44 tons to the acre. Interplanted groves averaged .13 tons of olives both during 1936-38 and 1948-51. In favorable seasons such as 1953 and 1954, yields reached .74 and .58 tons per acre respectively for unmixed plantings and .19 tons per acre both years for interplanted groves.

Processing Techniques and Products

Most of the many scattered olive pickling facilities in Italy are of a



Italian farmer winter-plows a mixed olive planting. Most tillage and heavy work utilizes animal power. Tractors are rarely used in olive groves.



Hillside plow and yoke in olive grove near Florence.

primitive type, geared only to the annual production of a few tons of table olives. Some plants in Sicily and Puglia, however, handle more than 500 tons of table olives each year.

The "backyard" nature of the industry permits few plants to have well-organized storage and pickling facilities. Buildings are often small and outmoded. Operations are cramped and involve much hand labor. Machinery is usually makeshift rather than specifically designed for processing olives. Sizing and grading equipment is crude.

Despite generally poor facilities many plants manage to process an attractive, tasty product. Because of the number of olive varieties handled, variations among processors, and conditions for processing, there are no generally recognized high standards for pickling such as those found in the Seville district of Spain. A few of the larger processors, however, somehow manage to pack products of good quality from green olives obtained from small independent processors.

Perhaps the most commonly used method for curing "ripe" style black olives is that of soaking the olives in lye until the sodium hydroxide penetrates to the pit. The lye is then soaked out and the olives treated with a heavy brine. The brine is changed and reduced before packing the olives. Vinegar, or vinegar and anchovies, are often added when the olives are finally packed into small paraffin-sealed kegs or glass jars.

The "salt" cure consists of barreling in heavy brine until the bitterness of the olive is removed. No lye treatment is given.

Green olive processing techniques are similar to those used in Spain. The olives are subjected to a lye treatment, brined, and permitted to ferment under controlled conditions.

Male workers in processing plants receive the equivalent of \$2.00 (U.S.) per day, female workers approximately \$1.60.

Italian table olive types.—In Sicily, the principal cure used in making table olives is the green fermentation or Spanish process. Black olives in brine and salted olives are also prepared. Olives not pickled are pressed for oil. The chief varieties of olives cultivated are: Nocellara Etna, Nocellara Del Belice, Ogliarola, Messinese, Moresca, and Zaituna.

In Puglia, the second most important table olive area, green fermented and black salt cured types are processed locally. Sun dried black olives are also a product of the region. The leading table varieties of the Puglia area are: S. Agostino, Cerignola, and Permezzana.

In Calabria, third ranking in the production of table olives, most production is cured by the Italian home method. Table olive production in Calabria is largely composed of Nocellara and Rotondello varieties.

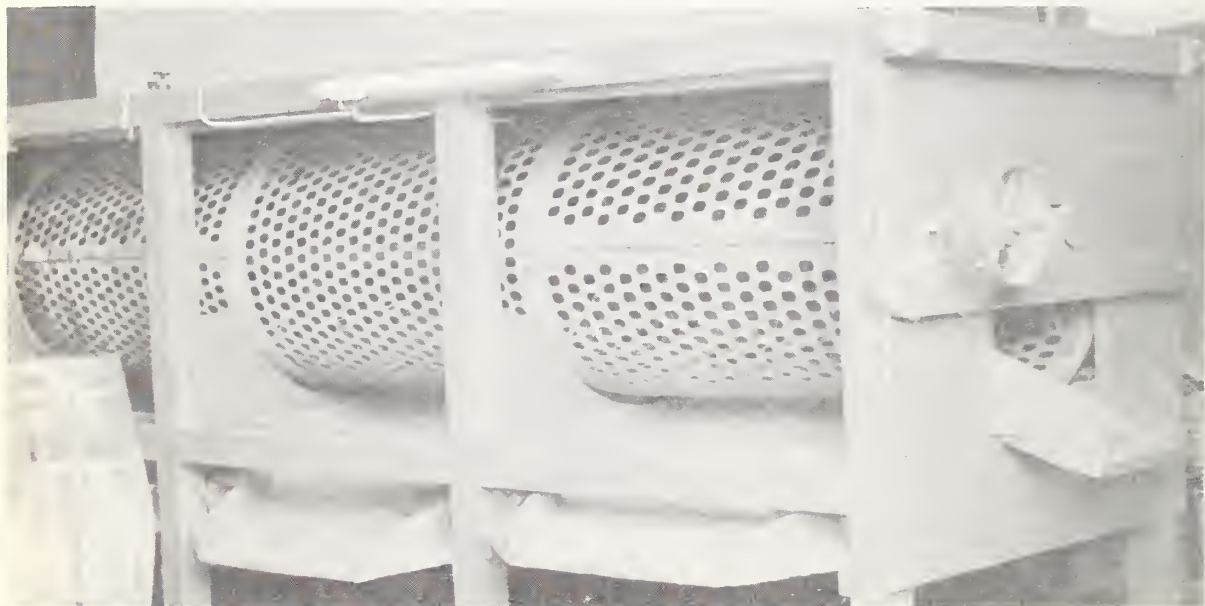
Gaetana and Cucco varieties predominate in Campania, which ranks fourth



Two year old olive trees ready for planting. The standard measures in decimeters.



Young olive resets are interplanted in old groves. Two main leaders are formed 3 to 4 feet above ground from a main trunk.



Size-grading equipment. Over 150 varieties of olive trees with various sized fruits are grown in Italy.

in importance among table olive areas. Abruzzi e Molise annually produces about 700 tons of green-fermented olives.

Olive Tree Nurseries

The olive tree nursery industry is highly developed in Italy. The Tuscany region near the village of Pescia produces 15 million trees annually. Most of these are oil varieties grafted to vigorous seedling stocks. Olive nursery lands in this area are often intercropped with carnations and vegetables. Balled root nursery stock is shipped to nearly every olive producing area of the world. Other large centers of nursery stock are located near Taranto in Puglia and close to Acireale in Sicily.

Research in Olive Culture

The quality of research carried on by some Italian scientists in olive production is excellent. However, research facilities in many instances—including personnel—are not adequate to handle the serious problems that confront the olive industry. Also, often the studies are confined to the laboratory and not taken into the field for trial under natural conditions.

When field investigations are undertaken, test plots are often too small or badly located. Communication between individuals carrying on similar or related work is frequently lacking, leading to duplication and delay. A general lack of coordination between localities and agencies with common problems exists.

The land reform agencies are carrying on an excellent program of teaching and demonstration among the growers. The regular provincial field agencies, however, are insufficiently staffed, trained, and financed to help many of the small olive growers most in need of assistance.

Simply written, or "popular" type publications are scarce. The few good general texts on olive culture have limited circulation. Their usefulness in meeting current problems—particularly those relating to pest and disease control—is also limited.

Foreign Trade in Italian Olives

The Italian table olive export trade is very small when compared to that of Spain. The United States, Canada, and the United Kingdom are the principal purchasing countries. The recent trend in U. S. purchases has been downward. As indicated, 97 percent of the Italian olive production is crushed for oil, leaving the production and marketing of table olives in a minor role both in the domestic and export markets. Exports of table olives from Italy are relatively unimportant, averaging about 1,000 tons per year. Italy imports several hundred tons of table olives per year—principally from Greece.

During 1956, Spain furnished 87 percent of all green pitted olives imported by the United States. Italian shipments of green pitted olives to the United States during 1956 amounted to 86,011 gallons, or approximately two and one half percent of all U. S. olive imports of this type. Italian shipments of other types of olives to the U. S. during 1956 were negligible.

Government and the Olive Industry

At the urging of the National Association of Olive Growers, a law was passed to improve and expand olive production and oil extraction. Government loans totaling \$59.7 million designed to facilitate ownership and development of groves and plants were authorized. These loans, to be made over a period of 10 years, bear 4 percent interest rates for farming and 6 percent for industrial development. Half of the funds are allocated to the purchase of groves and oil extraction plants and the other half for grove development, nurseries, capital investment in buildings and equipment for crushing plants, and training for farmers and industry technicians.

It is expected that 26 million olive trees will be planted under this program. The Italian Government seeks an annual average production of 385,000 tons of olive oil, thus reducing the need to import oilseeds and seed oil. Apparently production of table olives is not a part of this promotion program since little or no regulation and assistance is made available to the table olive industry. On the other hand, table olive prices benefit indirectly from the government assistance provided the olive oil segment of the industry.

TABLE 6.—Olives, brined: Italian imports by country of origin, averages 1935-39 and 1950-54, annual 1952-56

Country of origin	Average		1952	1953	1954	1955	1956
	1935-39	1950-54					
	Short tons	Short tons	Short tons	Short tons	Short tons	Short tons	Short tons
Greece.	65	304	235	550	662	845	843
Spain	21	—	(2/)	(2/)	—	—	—
Others.	4	7	(2/)	(2/)	26	259	184
Total	90	311	235	550	688	1,104	1,027

1/ 4-year average, 1937 not available.

2/ Less than $\frac{1}{2}$ ton.

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